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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,643	07/28/2006	Naoto Ono	52433/855	2791

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EXAMINER
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SAVAGE, JASON L

ART UNIT	PAPER NUMBER
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1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,643	<b>Applicant(s)</b> ONO ET AL.	
	<b>Examiner</b> JASON L. SAVAGE	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Otsuka et al. (US 2003/0183292 using US 6,851,455).

Otsuka in Patent 6,851,455 teaches a ferritic stainless steel pipe formed from a steel sheet having an elongation of the circumferential direction of 30% or more and a Lankford value of 1.2 or more (col. 7, ln. 37-43). Otsuka further exemplifies the use of steel components exhibiting elongations between 30-60% (Table 1). Although Otsuka does not provide the properties of the welded pipe, given the elongation values of up to 60% for the sheets prior to welding, the elongation of the welded pipe would be expected to be over 15% as claimed.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al. (US 2003/0183292 using US 6,851,455).

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Otsuka teaches what is set forth above and further teaches the ferritic stainless steel composition may comprise C, Si, Mn, Cr, Mo, Ti and/or Nb in the amounts claimed (col. 4-5, Table 1, such as Examples H and K). Otsuka also teaches the ferritic stainless steel may have values (r-value) over 1.5 (col. 5, Table 1).

Otsuka does not exemplify embodiments wherein P, S, N or B are contained in the ferritic steel composition in the amounts claimed. However, the recited elements are common additives in ferritic steels and thus it would have been obvious to have employed ferritic stainless steels comprising the claimed elements with a reasonable expectation of success. Absent a teaching of the criticality or showing of unexpected results, the claimed elements would not provide a patentable distinction over the prior art.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al. (US 2003/0183292 using US 6,851,455) in view of Hiroshi et al. (JP 2000-326079).

Otsuka teaches what is set forth above but it is silent to the hardness difference of the weld zone and matrix and the ratio of the bead thickness. Hiroshi teaches a ferritic stainless steel tube which is welded wherein the hardness difference between the welded portion and base matrix part is between 10-80 HV (abs). Hiroshi teaches that by controlling the hardness difference the workability of the welded stainless steel tube is improved (abs).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have controlled hardness difference of the welded tube of Otsuka to between 10-80 HV in order to improve the workability of the formed component. As such, Otsuka as modified by Hiroshi would overlap and meet the claim limitations wherein the hardness difference is between 10-40 HV. The subject matter as a whole which was disclosed by Otsuka and Hiroshi would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari* 182 USPQ 549.

Regarding the limitation that the bead thickness ratio of the weld zone to the thickness of the bead in the matrix is within the claimed range, it would have been obvious to one of ordinary skill optimizes the weld bead thickness to be at least equal to or slightly greater than the thickness of the matrix sheet since the weld bead would be the area most susceptible to cracking.

Regarding claim 4, although the references are silent to the recited sizing of the circumferential length, as disclosed by Applicant such as in Figure 6 of the instant Application, the hardness difference and sizing of the circumferential length are closely related properties. Since the prior art of Otsuka in view of Hiroshi teach hardness differences which overlap the range claimed by Applicant, one would expect the circumferential length to be sized within a similar range to that claimed by Applicant.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al. (US 2003/0183292 using US 6,851,455) in view of Hiroshi et al. (JP 2000-326079) as applied to claims 2 and 4 above, further in view of Takahashi et al. (US 6,645,318).

The prior art teaches what is set forth above however it does not recite that the article production method includes a step of annealing the welded pipe. Takahashi teaches a fuel tank made of ferritic stainless steel having lasting corrosion resistance, excellent formability, elongation of 30% or larger and high Lankford values (abs). Takahashi further teaches that it is known to anneal ferritic steel components in order to assist in a reduction process and improve the formability of the component (col. 7, ln. 10-32). Takahashi further teaches that the annealing temperature can be between 800 to 1150°C (col. 7, ln. 20-25). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to have treated the welded pipe of Otsuka as modified by Hiroshi such as by employing an annealing treatment so as to assist in the reduction process of the component.

### ***Response to Arguments***

Applicant's arguments filed 3-2-09 have been fully considered but they are not persuasive.

#### **US 2003/0183292 (aka Otsuka)**

Applicant argues that although Otsuka teaches the elongation of 30% or more, the properties are of the steel sheet prior to forming, welding and sizing for the welded pipe whereas the claims are drawn to the properties of the thus formed pipe. Applicant

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asserts that the forming process would remarkably deteriorate the elongation and Lankford value properties by 20-30% or worse and thus the formed pipe of Otsuka would not meet the claim limitations wherein the elongation of the formed pipe is 30% or more and having an average Langford value of 1.5 or more.

This argument is not commensurate in scope with claims 1-2 and 4-5 as the elongation values are not recited at being 30% and no Lankford values are recited.

Next, while the properties may deteriorate, Applicant has produced no evidence of how much they would deteriorate or whether the thus reduced properties would fall outside of the range claimed. Otsuka exemplifies sheets for forming the pipe having elongation as high as 60%. Even a 30% reduction in properties as asserted by Applicant would still fall within the claimed range of 15% in claims 1, 4 and 5 and 30% in claim 3.

Regarding the Lankford values, only claim 3 has any limitations drawn to the Lankford value. Otsuka exemplifies Lankford values of up to 1.84, so even if the pipe exhibited a deterioration in properties of just under 20%, it would meet the limitation of 1.5. Otsuka also teaches many of the same techniques employed by Applicant to achieve the desired properties of elongation and Lankford value including adding Ti and Nb in amounts over 0.1% to the ferritic steel composition (see specification, p. 8, ln. 26-37 and Table 1 in Otsuka) and increasing the interval between step rolls to minimize inducing strain from forming the pipe (spec. p. 15, ln. 1-10 and col. 2, ln. 31-43 in Otsuka). As such, it is expected that the resultant elongation and Lankford values would fall within the claimed range. The Patent and Trademark Office can require

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Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

Applicant also argues that even if the steel pipe compositions defined in claim 3 of the present invention are overlapped by those in Otsuka, the required properties are completely different. This argument is confusing as clearly Otsuka is directed to forming a welded pipe having high elongation and Lankford values to minimize or prevent crack formation in the formed pipe, it is just not entirely clear what those resultant values would be after processing a sheet into a welded pipe. Since Otsuka teaches substantially the same material used to form substantially the same article using substantially the same process, one would expect their properties such as the elongation and Lankford values to be the same. As such, Applicant's argument is not persuasive.

Japan 2000-326079 (aka Hiroshi)

Applicant argues that Hiroshi teaches keeping the relative hardness within a range of 10-80 to prevent the formation of brittle cracks in the welded portion, while the



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present invention targets to adjust the weld zone strength (aka hardness) in a multi-step expansion with a suitable balance of strength of the weld zone and the matrix and, in addition to the weld zone hardness, the weld zone bead thickness must be made in a suitable range. Applicant concludes that this is totally different from Hiroshi which aims to merely balance between the hardness difference between the weld zone and the matrix.

First, Applicants statements of the multi-step expansion and other specific processing limitations are not commensurate in scope with the claims. Second, the recited 'strength' matching which Applicant asserts is completely different from that taught by Hiroshi is in fact just matching the hardness of the two portions. Hiroshi also teaches matching the 'strength' in the weld zone and matrix and in the same range as claimed by Applicant completely encompassing the claimed range between 10-40. Furthermore, Hiroshi teaches said strength/hardness matching to solve the same problem Applicant is attempting to address which is minimizing or preventing crack formation. As such, since Hiroshi teaches the same strength/hardness matching overlapping the same range claimed by Applicant to solve the same problem of minimizing crack formation, the assertion the claimed invention is totally different is not persuasive.

Regarding the limitation that the bead thickness ratio of the weld zone to the thickness of the bead in the matrix is within the claimed range, as recited in the rejection above, it would have been obvious to one of ordinary skill optimizes the weld bead

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thickness to be at least equal to or slightly greater than the thickness of the matrix sheet since the weld bead would be the area most susceptible to cracking.

Applicant also states that Hiroshi does not disclose or suggest the inventive feature of annealing at 700-850°C after forming the pipe recited in claim 5. However claim 5 is not rejected in view of Hiroshi alone and instead applies Takahashi (US 6,645,318) to demonstrate that the recited annealing step would have been obvious.

US 6,645,318 (aka Takahashi)

Applicant argues that although Takahashi teaches annealing a pipe or tank at 800-1150°C to recover elongation, the present invention is different in that the annealing step and temp range is aimed at preventing cracks during the multi-step pipe expansion for securing the present invention feature of the hardness difference of 10-40 and ratio RT within the range of 1.05 to 1.3.

This argument is not commensurate in scope with the claims as there are no limitations drawn to multi-step pipe expansion and further neither claims 1, 4 or 5 recite the hardness difference or ratio RT range. Furthermore, since Otsuka is directed to forming a pipe having good elongation properties, it would have been obvious to one of ordinary skill in the art to have applied a heat treatment such as taught by Takahashi to the formed pipe to recover any properties lost during formation. Whether the prior art teaches performing the same processing step for the same reason would not change that it still would have been obvious to employ the recited process step. It is also noted that Applicant discloses in the specification on page 11, lines 6-12 that the heat

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treatment restores the formability of the matrix which would be considered equivalent to restoring elongation in the matrix.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason Savage/  
Examiner  
6-17-09

/JENNIFER MCNEIL/  
Supervisory Patent Examiner, Art Unit 1794